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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/485,559	02/11/2000	SARA W. BOEHMER	FL1049USPCT	6181

23906 7590 10/13/2004

E I DU PONT DE NEMOURS AND COMPANY  
LEGAL PATENT RECORDS CENTER  
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EXAMINER

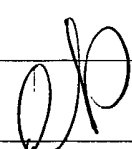
MANOHARAN, VIRGINIA

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 10/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/485,559	BOEHMER ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Virginia Manoharan	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 July 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

### DETAILED ACTION

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO A-9703936 and EP-A 0626362.

The WO '936 discloses a process for the separation of difluoromethane (HFC-32) from pentafluoroethane (HFC-125), using methylene chloride as the extractive distillation agent. The methylene chloride corresponds to chlorocarbon extractive agents consisting of chlorocarbons having a normal boiling point greater about 39° C and represented by the formula  $C_sH_{2s+2-4}Cl_t$ , wherein s is 1 or 2 and t is from 2 to 4 to form a second mixture..." as broadly claimed in claim 1. EP-A0626 362 separates pentafluoroethane (HFC 125) from chloropentafluoroethane (CFC-115) utilizing extracting agents including hydrocarbons, alcohols and ketones (page 2, lines 35-37). . To combine the above references such that the hydrocarbons of EP '362 is used with or without the methyl chloride would have been obvious to one of ordinary skill in the art since reasonable expectation of success is achieve utilizing any of the solvents or agents disclose in both references for the separation of HFC-32 from HFC-125.

Art Unit: 1764

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants' Disclosure of Admitted Prior Art as illustrated by Japanese patent Application No. 07291878 in view of EP '362 and WO '936.

Applicants admit at page 2, lines 4-9, that "...Takahashi Reiji et al, in Japanese patent, application JP 07291878, describe a process for the removal of HFC-143a, HFC-125, and methyl chloride from HFC-32 by extractive distillation. This process is characterized by employing at least one of 1, 1-dichloro-1-fluoroethane ( $\text{CCl}_2\text{FCH}_3$ , HCFC-141b), dichloropentafluoropropane, trichlorotrifluoroethane, and 2, 2-dichloro-1, 1, 1-trifluoroethane ( $\text{CHCl}_2\text{CF}_3$ , HCFC-123) as extractive agent.

EP '362 and WO '936 are discussed supra. To substitute and /or utilize the agents used in the process of EP '362 and WO '936 in the process admitted to be known by applicants would have been obvious to one of ordinary skill in the art especially since all the references are directed to the same processing environment i.e., to a process for separating e.g., difluoroethane from a mixture containing the same.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Lee discloses the separation and recovering of hydrocarbon from mixtures thereof.
- b. Miller '161 discloses an extractive distillation process for separating difluoroethane using methyl chloride.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to V. Manoharan whose telephone number is (571) 272-


Art Unit: 1764

1450. The examiner can normally be reached on Tuesday--Friday from 9:30 a.m. to 6:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

V. Manoharan/dh  
October 7, 2004

  
VEENIA MANOHARAN  
PRIMARY EXAMINER  
ART UNIT 1764  
10/8/04